



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,831	12/02/2003	Hirofumi Kuwabara	246072US3	2728
22850	7590	04/06/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TAMAI, KARL I	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,831

Applicant(s)

KUWABARA ET AL. 

Examiner

Tamai IE Karl

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 78/1/2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/2/2003.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, 7, 14, 16, 17, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (JP 07322576) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Suzuki and Yamada as set forth below. Suzuki teaches a permanent magnet rotor having a shaft with four grooves between protrusions 23 which defines a gap G and the thickness (height) of the adhesive between the permanent magnet 1 and the shaft 2. Suzuki shows the magnet 1 and the shaft 2 as different materials (cross sections), therefore it is inherent that the magnet and shaft are made of different materials and different coefficients of thermal expansion, and that the adhesive layer G

Art Unit: 2834

will absorb some of the sheering stress caused by thermal expansion. Suzuki shows the magnet having more than nearly 100% of the surface adhered to the rotor (inherently includes more than 48% and 48-65%).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-3, 6-8, 14, 15, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (JP 07322576) and Yamada et al. (Yamada)(US 5734216). Suzuki teaches a rare earth (NdFeB) permanent magnet rotor mounted on a steel (S10C) shaft with four grooves between protrusions 23 which define a gap G and the

Art Unit: 2834

thickness (height) of the adhesive between the permanent magnet 1 and the shaft 2.

Suzuki shows the protrusions/grooves extending the length of the rotor (see figure 2).

Suzuki does not discuss the thermal expansion of the permanent magnet and the rotor, the thickness of the determining means (G) or the materials for the rotor and permanent magnet. Yamada teaches the thickness of the gap is 0.2mm around 100% of the rotor.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Suzuki with the thickness of the projections is 0.2 mm to prevent breakage of the magnet at high temperatures.

8. Claims 4, 5, 9, 10, 12, 13, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (JP 07322576) and Yamada et al. (Yamada)(US 5734216).

Suzuki and Yamada teach every aspect of the invention except the thickness range being 0.075-0.175 or 0.1-0.15 mm, or the difference in the coefficient of thermal expansion being greater than 10.4×10^{-6} . Yamada teaches the thickness of the adhesive layer and the difference in the coefficient of thermal expansion are result effective variables to prevent breakage of the magnet. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Suzuki with the thickness of the determining means being 0.075-0.175 or 0.1-0.15 mm to prevent breakage of the magnet at high temperatures.

Art Unit: 2834

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (JP 07322576) or (Suzuki and Yamada) in further view of Kobayashi et al. (Kobayashi)(JP 10-174318). Suzuki teaches every aspect of the invention except the radius of the magnet being different from the radius of the rotor or stator. Kobayashi teaches the radius of the magnet can be varied prevent the step of grinding the magnet during production and to control the spacing in a motor. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Suzuki with the gap formed by a radius of curvature of the magnet being smaller than the rotor/stator to create a gap with out grinding the magnet, as shown in figure 2, and thus control dimension magnets and rotor in the motor.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (JP 07322576) or (Suzuki and Yamada) in further view of Corbach et al. (Corbach)(US 4155021). Suzuki teaches every aspect of the invention except the thickness determining means being a groove on the magnet. Corbach teaches groove and protrusions on the magnets to determine the thickness of a cement. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Suzuki with the grooves/protrusion on the magnet instead stead of the stator or rotor because the grooves and protrusion are easily formed during production of the magnet as taught by Corbach.

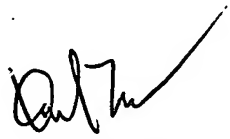
Art Unit: 2834

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
April 4, 2005



KARL TAMAI
PRIMARY EXAMINER